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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,085	04/06/2006	James Eldon	878A.0010.U1(US)	4067
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HARRINGTON & SMITH, PC 4 RESEARCH DRIVE, Suite 202 SHELTON, CT 06484-6212				RAINEY, ROBERT R
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/541,085	ELDON ET AL.	
	Examiner	Art Unit	
	ROBERT R. RAINY	2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 10 October 2008.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,3,5-11 and 14-23 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,3,5-11 and 14-23 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 29 June 2005 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application

6) Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 10/10/2008 have been fully considered and are addressed below.
2. The amendments to claims 9 and 19 overcome the objections to the claims raised in the previous office action.
3. The amendments to the claims did not address the objection to claim 8. However, upon further review examiner believes that claim 8 does indeed further limit claim 1 and the objection is withdrawn. Display in the indicia "from each" is more limiting than "in association with". Note that under this interpretation examiner believes that applicant has inadvertently claimed two first sets of indicia and two second sets of indicia. Examiner believes that applicant's intended meaning is that in the first mode a member of **the** first set of indicia is displayed from each of the key elements. This is the interpretation examiner used throughout the previous office action, whether or not it was strictly required by the claim language as in claim 8 or was not so strictly required as in claim 1.

The limitations of Claim 8	The limitations of Claim 1
the display controller is arranged to	a display controller operable to control the continuous flexible display film
in a first mode, cause the display device to display a first set of indicia from each of the key elements	to have a first display output in which a first set of indicia are displayed in association with the set of mechanical key elements

and, in a second mode, display a second set of indicia from each of the key elements	and a second display output in which a second set of indicia , different to the first set of indicia, are displayed <i>in association with the set of mechanical key elements</i>
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4. The amendments to claims 1, 3, 19 and 20 effectively over come the rejections raised in the previous office action concerning lack of antecedent basis under 35 U.S.C. 112 second paragraph.
5. Applicant's arguments with respect to the section 102 or 103 rejections of claims 1, 3, 5-12, and 16-20 (all outstanding claims) have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
7. Claim 8 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "the display device" in the third line of the claim. There is insufficient antecedent basis for this limitation in the claim. Note that reference to "the display device" was removed from claim 1 in the most recently amended set of claims.

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. **Claims 21-23** rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to **claims 21 and 22**, these claims are method claims. The specification as filed made no mention of methods.

As to **claim 23**, this is a claim to a computer readable medium encoded with instructions to perform particular operations, i.e. method steps. The specification as filed made no mention of the particular instructions being so encoded. The specification only speaks generally of memory in a device with instructions but doesn't specifically say that it is the claimed set of instructions.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claims 1, 3, 5-10, 15, 16, and 19-23** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Application Publication No. 2002/0034930 to Yamazaki *et al.* ("Yamazaki") in view of U.S. Patent No. 6,067,074 to Lueders ("Lueders").

As to **claim 1**, Yamazaki discloses:

A keypad comprising:

a set of switches (see for example Fig. 3 items 608 and 609 and [0073]-[0074]);

a set of mechanical key elements arranged in a plane wherein each mechanical key element has a fixed position in the plane relative to the fixed positions of each other mechanical key element wherein each mechanical key element is capable of being moved by a user so as to operate a respective switch and wherein each mechanical key element comprises a separate outer pad for actuation by a user (see for example Fig. 3 items 603 and [0072]); and

a flexible display extending beneath the set of mechanical key elements and over the set of switches and configured to position the set of mechanical key elements for user actuation and to present a plurality of controllable pixels under each of the mechanical key elements and arranged to flex when a user moves any one of the set of mechanical key elements to operate a respective switch (see for example Fig. 3 items 604-606 and [0011]; note that referring to the "pixel portion" would have fairly suggested to one of ordinary skill in the art a "plurality of controllable pixels") and a display controller operable to control the flexible

display to have a first display output in which a first set of indicia are displayed in association with the set of mechanical key elements and a second display output in which a second set of indicia, different to the first set of indicia, are displayed in association with the set of mechanical key elements, wherein the mode of the display device can be varied under the control of the display controller (see for example Abstract, especially "switching input modes", and [0062] or [0086] or [0094] for change in the image displayed on the keys, in which a change in the image displayed indicates that there are first and second sets of indicia and first and second modes, and [0064] for the display controller comprising the "CPU"). Also taught is adding substantially transparent mechanical key segments above the substantially planar flexible display to provide contact pad locations (see for example Fig. 3 items 603).

Yamazaki does not expressly disclose that the flexible display is a continuous flexible display film.

Lueders discloses a keypad with a flexible display membrane or continuous flexible display film (see for example Fig. 3 and 5:9-18). Note that *Lueders* also teaches that the display is between the contact pad locations (see for example Fig. 3 the portion of the top of the flexible display membrane that is under the finger) and the switches (see for example Fig. 3 item 28) and that the continuous flexible film locates the contact pad locations for user actuation (see for example Fig. 3 noting that it would be fairly suggested to one of ordinary skill in the art that the contact location would not move especially since then the

registration between the displayed legends and the switches would be degraded). It is just that in this case the contact pad locations are not raised up above the rest of the display.

Yamazaki and *Lueders* are analogous art because they are from the same field of endeavor, which is keypads with keys having programmable indicia.

The prior art contained a device, *Yamazaki*, which differed from the claimed device by the substitution of a continuous flexible film for the flexible display of *Yamazaki*. The required continuous flexible film and its functions were known in the art as demonstrated by *Lueders*. One of ordinary skill in the art at the time of the invention could have substituted the continuous flexible film of *Lueders* for the flexible display of *Yamazaki* and the results would have been predictable. In both cases the component must flex sufficiently to actuate the desired switch without actuating an adjacent switch (see for example *Lueders* 9:15 and compare *Lueders* Fig. 3 and *Yamazaki* Fig. 3).

As to **claim 3**, in addition to the rejection of claim 1 over *Yamazaki* and *Lueders*, *Yamazaki* further discloses that the key elements are rigid elements interconnected by the continuous flexible display film (see for example Fig. 3 noting that item 603 is shown undeformed between 3A and 3B).

As to **claim 5**, in addition to the rejection of claim 1 over *Yamazaki* and *Lueders*, *Yamazaki* further discloses that each outer pad is transparent (see for example [0072]).

As to **claim 6**, in addition to the rejection of claim 1 over *Yamazaki* and *Lueders*, *Yamazaki* further discloses that the continuous flexible display film is configured to emit light (see for example [0011]).

As to **claim 7**, in addition to the rejection of claim 1 over *Yamazaki* and *Lueders*, *Yamazaki* further discloses an electronic device including a keypad as claimed in claim 1 and the said display controller (see for example Fig. 1 for the electronic device; the display controller was already covered in the rejection of claim 1).

As to **claim 8**, all limitations were covered in the rejection of claim 7 as depended from claim 1. The rejections and art cited already assumed that the indicia were displayed from each key element.

As to **claim 9**, in addition to the rejection of claim 8 over *Yamazaki* and *Lueders*, *Yamazaki* further discloses that the first mode is a numeric input mode and the first set of indicia are numeric indicia, and the second mode is an alphabetic input mode and the second set of indicia are alphabetic indicia (see

for example [0105] in which the first set of indicia corresponds to the first memory and the second set of indicia corresponds to the third memory).

As to **claim 10**, in addition to the rejection of claim 9 over *Yamazaki* and *Lueders*, *Yamazaki* further discloses that the first and second modes the indicia displayed from each key element is indicative of the character that would be input on pressing the key element (see for example Abstract, especially "With the present invention, display devices are formed in operation keys for inputting information to electronic devices such as portable information terminals, typically portable telephone devices, and information terminals, typically personal computer or stationary telephone devices. A user is able to recognize the operation keys by characters, symbols, and numerals displayed in the operation keys by the display devices." or [0010] or [0286]).

As to **claim 15**, in addition to the rejection of claim 8 over *Yamazaki* and *Lueders*, *Yamazaki* further discloses that the key elements are arranged to protrude through individual holes in a housing of the electronic device (see for example Fig. 1 and Fig. 3).

As to **claim 16**, claim 16 adds only the concept of first and second sides to the limitations of claim 1. First and second sides are clear in the rejection of claim 1 and claim 16 is rejected over the same art and arguments as claim 1.

As to **claim 19**, in addition to the rejection of claim 1 over *Yamazaki* and *Lueders*:

Yamazaki and *Lueders* discloses the claimed invention except for the display device being a transflective display device. It would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute a transflective display device for the EL or transmissive display devices taught by *Yamazaki* since it was known in the art that transflective displays were substitutable for EL or transmissive displays and applicant has not taught that the particular display type solved a particular problem (as evidence that transflective displays and their strengths and weaknesses, i.e. interchangeability, with respect to transmissive and electroluminescent displays, was well known see for example U.S. patent No. 6,124,971 to Onderkirk et al. 1:41-60 and surrounding paragraphs).

As to **claim 20**, in addition to the rejection of claim 8 over *Yamazaki* and *Lueders*, *Lueders* further discloses that the continuous flexible display film is a transmissive continuous flexible display film (see for example 4:45-62).

As to **claims 21 and 22**, these claims claim methods implicit in the apparatus claimed in claim 1 and are rejected on the same grounds and arguments.

As to **claim 23**, since providing instructions on a computer readable medium to accomplish the claimed method would have been fairly suggested to one of ordinary skill in the art given the art cited, recall reference to CPU, and that the method claimed is implicit in the apparatus claimed in claim 1, claim 23 is rejected on the same grounds and arguments as claim 1.

12. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0034930 to *Yamazaki et al.* ("Yamazaki") in view of U.S. Patent No. 6,067,074 to *Lueders* ("Lueders") and further in view of U.S. Patent No. 6,219,731 to *Gutowitz* ("Gutowitz").

As to **claim 11**, in addition to the rejection of claim 10 over *Yamazaki* and *Lueders*:

Yamazaki and *Lueders* discloses the claimed invention except for in the second mode the character that would be input on pressing the key element is dependent on the number of times the key element has been pressed within a predetermined time period of each previous such press without the pressing of another of the key elements.

Yamazaki and *Lueders* does not expressly disclose that in the second mode the character that would be input on pressing the key element is dependent on the number of times the key element has been pressed within a

predetermined time period of each previous such press without the pressing of another of the key elements.

Gutowitz discloses multi-tap character input or that the character that would be input on pressing the key element is dependent on the number of times the key element has been pressed within a predetermined time period of each previous such press without the pressing of another of the key elements (see for example Abstract).

Yamazaki as modified by *Lueders* and *Gutowitz* are analogous art because they are from the same field of endeavor, which is reduced key-set input devices.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to use multi-tap input with the device of *Yamazaki*. The suggestion/motivation would have been to use a de facto standard, that is a method that users could be assumed to be familiar with, (see for example *Gutowitz* Abstract).

13. **Claims 14, 17 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0034930 to *Yamazaki et al.* ("Yamazaki") in view of U.S. Patent No. 6,067,074 to *Lueders* ("Lueders") and further in view of U.S. Patent No. 6,704,004 to *Ostergard et al.* ("Ostergard").

As to **claim 14**, in addition to the rejection of claim 1 over *Yamazaki* and *Lueders*, *Yamazaki* further discloses the use of nibs between the key elements and the switch wherein each switch is positioned directly underneath a nib of its respective key element (see for example Fig. 4).

Yamazaki does not expressly disclose nibs connected to the second side of the display device.

Ostergard discloses an arrangement for integration of key illumination into keymat of portable electronic devices and in particular: nibs connected to the second side of a display device (see for example Fig. 4 items 22 and 6:47-62).

Yamazaki as modified by *Lueders* and *Ostergard* are analogous art because they are from the same field of endeavor, which is illuminated indicia keypads.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to add nibs between the display and the switches as taught by *Ostergard* to the device of *Yamazaki*. The suggestion/motivation would have been to allow the user to selectively activate the switches (see for example *Ostergard* 6:54-55).

As to **claim 17**, in addition to the rejection of claim 16 over *Yamazaki* and *Lueders*, *Yamazaki* further discloses the use of nibs between the key elements and the switch wherein each of the plurality of nibs corresponds to one of the plurality of mechanical key elements (see for example Fig. 4).

Yamazaki does not expressly disclose nibs connected to the second side of the display device.

Ostergard discloses an arrangement for integration of key illumination into keymat of portable electronic devices and in particular: nibs connected to the second side of a display device (see for example Fig. 4 items 22 and 6:47-62).

Yamazaki as modified by *Lueders* and *Ostergard* are analogous art because they are from the same field of endeavor, which is illuminated indicia keypads.

At the time of invention, it would have been obvious to a person of ordinary skill in the art to add nibs between the display and the switches as taught by *Ostergard* to the device of *Yamazaki*. The suggestion/motivation would have been to allow the user to selectively activate the switches (see for example *Ostergard* 6:54-55).

As to **claim 18**, in addition to the rejection of claim 17 over *Yamazaki*, *Lueders* and *Ostergard*, *Yamazaki* further discloses a plurality of resilient members between the plurality of nibs and the plurality of switches (see for example Fig. 4 items 708) and *Ostergard* further discloses a plurality of resilient members between the plurality of nibs and the plurality of switches (see for example Fig. 4 the portion of switch 110 pointed to by the arrow).

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Application Publication No. 2003/0231197 to Janevski teaches a continuous flexible display film with raised buttons on top and switches below it.

U.S. Patent No. 4,024,368 to Shattuck teaches a flexible display with transparent key pad above and switches below.

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT R. RAINY whose telephone number is (571)270-3313. The examiner can normally be reached on Monday through Friday 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amare Mengistu can be reached on (571) 272-7674. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RR/

/Amare Mengistu/
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